Name: **Enrolment No:**	

UPES

End Semester Examination, May 2023

Course: Microprocessor and Microcontroller **Semester: IV**

Program: B. Tech Electronics **Time: 03 hrs.**

Course Code: ECEG 2046 **Max. Marks: 100**

SECTION A

S. No.		Marks	CO
Q 1	Describe the function of the following: i) TRAP ii) HOLD iii) HLDA iv) SOD	**04**	**CO1**
Q 2	What is the purpose of flag registers in 8085 processor? Explain with an example.	**04**	**CO1**
Q 3	A switch is connected to pin P1.7. Write a program to check the status of the switch and make the following decision. (a) If SW = 0, send "0" to P2 (b) If SW = 1, send "1" to P2	**04**	**CO2**
Q 4	Describe the various addressing modes of 8051 microcontrollers.	**04**	**CO2**
Q 5	Write down the program for sorting of array (assume any 5 input) using 8085 ALP.	**04**	**CO3**

SECTION B

Q 6	a) Write an 8086-assembly language program to find the sum of an array of 16-bit unsigned integers. b) Write down the program to generate the delay of 1 ms. If the processor operates at 3 MHz.	**10**	**CO3**
Q 7	a) Draw the timing diagram for the instruction STA 2000 H and explain the function of each machine cycle. b) Explain the function of each pin of 8086 microprocessor with diagram.	**5+5**	**CO2**
Q 8	a) Explain the various modes of operation of 8255. b) Draw 8253/8254 timer circuitry and explain the function of the same.	**10**	**CO1**
Q 9	Draw the bus architecture of 8088 and also, explain the working of the 8088 internal bus.	**10**	**CO2**

SECTION-C			
Q 10	a) Detail the completed internal RAM memory architecture of 8051 with complete description of register banks, bit Addressable RAM allocation and SFR. b) Interface the circuit of seven segment display unit with 8051 microcontroller. Also, write down a program for the same using embedded C/Assembly language. OR Illustrate the interfacing of following display devices to 8051 microcontroller, draw the diagram and write the logic. 1. Light Emitting Diodes 2. Liquid Crystal Displays	**20**	**CO4**
Q 11	a) Assume that RAM locations 30 – 34H have the following values. Write a program to find the sum of the values. At the end of the program, register A should contain the low byte and R7 the high byte. 30 = (7D) 31 = (EB) 32 = (C5) 33 = (5B) 34 (30) b) Find the size of the delay in the following program, if the crystal frequency is 11.0592MHz. DELAY: MOV R2, #200 H AGAIN: MOV R3,#250 H HERE: NOP NOP DJNZ R3, HERE 2 DJNZ R2, AGAIN 2 RET	**10+10**	**CO3**